University of Rochester Graduate Degree Program Assessment Plan

A. Program title: Brain and Cognitive Sciences

B. Program degree: Ph.D.

C. Program objectives and program learning outcomes:

Program objective 1. Program will prepare students to become junior colleagues and future peers in the science community

Program learning outcome 1: **Core Knowledge**: The curriculum will prepare them for advanced work. The core curriculum covers a range of topics in perception, action, cognition, language, learning and development, each examined from the perspectives of behavioral, computational, and neural science, all students must acquire some expertise in at least two approaches. A course will be offered to all graduate students but mandatory for first years is a course aimed to help students understand better the expectations of the program, what they need to focus on to achieve success in an academic career path, how to navigate various professional activities, etc.

Program learning outcome 2: Specialization knowledge: Attend advanced courses and seminars in one or more areas of specialization. Students should broaden their depth on techniques and inspiration and are encouraged to undertake projects with faculty from outside the department. At all stages of their graduate career, students are heavily engaged in research.

Students are exposed to issues and principles of scientific integrity in science in three main ways. First, they are each working closely with faculty advisers whose own conduct exemplifies appropriate standards, and who explicitly train the students during research enterprises on such matters as general issues of ethics in science and such specifics as authorship, plagiarism and appropriate attribution of credit, the need for careful record keeping, the need to be explicit about methods and results, and the need to cross-check results and replicate them before presenting them publicly. Second, seminars on every topic regularly include discussions of these issues when research papers are read and critically evaluated. In these senses the training of responsible conduct of research is integrated into our research and academic program. However, to make training in the responsible conduct of research a more explicit

and focused part of the general training program as well, all trainees take a one-semester course on Ethics and Professional Integrity in Research (IND 501) provided by the University of Rochester.

Program learning outcome 3: Background/ Broader Knowledge: Students take a qualifying exam covering the scholarly literature surrounding their area of specialization, and thereafter typically devote themselves fully to their research

Program objective 2. Program will prepare students to train for research in the disciplines that constitute the brain and cognitive sciences

Program learning outcome 1: we encourage students to undertake projects in several laboratories that use different research methods, and we provide courses that introduce students to the range of methods we use in research. Program emphasizes training in the range of research methods that drive the field

Program learning outcome 2: become familiar with a range of methods, each develops real expertise in those that best serve the chosen field of specialization. We attach great importance to the collegiality of contact among graduate students, post-doctoral fellows and faculty, and the department fosters this by encouraging students to work with several faculty members, concurrently or sequentially, and with one another.

Program learning outcome 3: encourage students to develop rapidly into independent researchers, and to become major contributors to the intellectual life of the department. Students are required to attend many of the lab meetings offered by their advisor and other lab meetings organized by other faculty in BCS and associated departments.

Program objective 3. Program will prepare students to Professional Life

Program learning outcome 1: Publish in journals

Program learning outcome 2: Conference (attending & presenting). The department will provide funds to each student to attend conferences that are vital to their current research. Students are required to present their research during a BCS Lunch Talk once during their academic career.

The department and other associated departments offer many opportunities to attend Colloquia series. These colloquium speakers from other universities cover an enormous range of current up-to-date research and approaches.

Program learning outcome 3: Teaching (as TA or instructor) Research training is paramount, we are training future academics, many of whom will combine teaching with research. All graduate students therefore also undertake some teaching, usually as assistants to faculty in lecture or laboratory courses. More senior students are eligible to teach smaller courses during the summer months.

All students are required to take BCS 599 Professional Development in their first year of study and BCS 582 Grant Writing in Brain and Cognitive Sciences ****will this course still be called Grant Writing****

D. Program assessment methods- direct methods

Assessment of Student Progress

Progress towards program objectives is monitored during the PhD student career through the following evaluation mechanisms.

1. Course Work: PhD students must complete 10 courses in their first two years and receive course credit and a letter grade.
   Core Courses (4 core courses from three areas of research in BCS, 2 courses are offered per research area)
   Statistics (1 course required)
   Methods (2 courses are required)
   Ethics (1 course required)
   Professional Development (2 courses required – BCS 582 and 599)

2. Teaching Assistants: PhD students serve as teaching assistants for three BCS/NSC undergraduate classes in year 2 and 3. The students meet with the instructors at the beginning of the semesters to discuss the TA responsibilities for the class. Teaching evaluations are conducted by the instructor at the end of the semester and the TAs are also evaluated by the University's Student Course Opinion Questionnaire by the students in the class.

3. Research: PhD students select an Advisory committee in their first semester. The advisory committee consists of 3 faculty members, including the student's primary research advisor. One member of the advisory committee will be the committee chair. Students meet with their advisory committee at the end of Year 1 to discuss the student's progress and readiness for the oral/written presentation in Fall of Year 2. In Year 2, each student will give an oral presentation and will write a 3-5 page paper that will be reviewed by the Advisory committee.

4. Qualifying Exam: The format will consist of 6 questions, with the student writing 5 pages maximum per question. Alternatively, the student could opt to address 3 questions and write a review paper potentially suitable for publication (the paper must be submitted to the Advisory Committee approximately 30 days after completing the qualifying exam).

5. Dissertation Proposal: ***new procedure****

6. PhD Thesis: Students follow the University of Rochester guidelines on writing a thesis and follow the University procedures for registering their thesis. Students have a public defense and immediately following a closed defense with the committee members and Chair of the committee.

E. Program assessment methods- indirect methods

F. Summary of program components and assessment mechanisms

						Assessment
	1st Year	2nd Year	3rd Year	4th Year	5th Year	
Core Courses	2 – 3	1 - 2				Graded
Statistics		1				Graded
Methods	1	1				Graded
Ethics (either Year 1 or 2)	1					Graded
Professional	1		1			Graded
TA Assignments	1	1	1			Graded/ Evaluated
Research	1	1	1	1	1	Graded/ Evaluated
Qualifying exam			1			Qualifying Committee
Dissertation Proposal				1		Thesis

						Committee
PhD Thesis					x	Thesis Committee

G. Program assessment data review plan

After each academic year, (June), the Director of Graduate Studies organizes a meeting for all faculty involved in graduate student training, to discuss each graduate student individually and to discuss the students progress from the previous academic year. Every student is evaluated on their course requirements, research progress, TA evaluations given by the instructors, and involvement in the department community (attending talks, lab meetings). After the annual meeting, the advsiors meet with their students to discuss their progress to date and discuss upcoming goals.

First Year students meet with their advisory committee members (chair of the committee, student's advisor, and one other faculty members) to discuss the student's progress and their readiness for the oral/written presentation in Fall of Year 2. Following this May/June meeting, the chair of the Advisory committee will compose a brief memo (representing the thoughts of the committee as a whole) to the student and to the director of the grad program to give the student some feedback on their progress.

Second Year students will present a short oral presentation to their advisor committee members. The chair of the Advisory Committee will again compose a memo summarizing progress, areas of concern, and any other recommendations of the committee. If the Committee is concerned about the student's progress or prospects in the program, the student will be given feedback about how they need to improve. If the concerns are serious, a student could be placed on probation and progress monitored accordingly.

Third Year students are required to take their Qualifying Exam. After exam is reviewed by the committee members, the students must meet with each committee member for feedback on their qualifying exam.

Third Year (spring) **GRANT WRITING COURSE – INPUT INFORMATION TO STUDENTS HERE**

Fourth Year: Dissertation proposal approved by committee members and advisor

Fifth Year: PhD Thesis Defense approved by committee members and advisor